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ABSTRACT

A research project was conducted to see if students given direct instruction in recognizing and asking literal, interpretive, and critical questions would ask better questions about material they read than students who were not given the same instruction. This premise, based on an extensive search of the literature on questioning and comprehension, was first tested in a pilot study at a university-sponsored elementary school. Subjects were 40 fifth and sixth grade students divided by grade into two control and two experimental groups of 10 each. To evaluate their question generating ability, all were administered a pretest consisting of reading a story and writing down questions they would ask other students about it. These questions were reviewed and categorized in increasing degree of difficulty as having answers that were (1) explicit in the text, (2) implicit in the text, or (3) needed to be supplied from the reader's background. The two experimental groups were then given lessons in how to identify and generate questions using three different teaching strategies. Finally, both experimental and control groups were given a posttest using the pretest story, and asked to write questions about it. Again these were reviewed and categorized. Both experimental groups showed marked increases in the number of questions beyond the literal or textually explicit level, while the control groups showed little or no improvement in their questioning skills. All the teaching strategies seemed successful. Once these results were evaluated, a field study was undertaken for which only preliminary data are available. (RBW)

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STUDENT GENERATED QUESTIONS: STRATEGIES FOR STUDENT INVOLVEMENT TO AID COMPREHENSION

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Presented by:

Dr. Donald C. McFeely

Indiana University of Pennsylvania

CS 007 769

DEDICATION

I would like to dedicate this paper and the research project to Miss Lillian Martin, a professional educator for the last thirty-eight years. Lillian has been a supervising teacher in the Primary Unit in the University School at Indiana University of Pennsylvania for the last thirty years. During this time she has shared her teaching expertise with children, undergraduate and graduate students and faculty. Lillian is a prime example of a teacher who continues to grow professionally regardless of the time spent in the classroom. Lillian will retire at the end of this semester. I consider it a pleasure and an honor to share this time with her. This is one more example of her dedication to teaching. I would like to wish her success and good health during her retirement. She will be missed.

Donald C. McFeely

PREFACE

This paper and the reported research project was funded by a Faculty Research Grant from Indiana University of Pennsylania. We would like to thank the Research Committee for their support.

We have three purposes for this presentation:

1. To review the relevant research in the area of questioning that had an impact on our thinking.
2. To present a model for teaching students to generate questions.
3. To present the views of a classroom teacher in regards to applying questioning strategies in the classroom.

Lillian Martin

Donald C. McFeely

"Strategies and Research for Involving Students in the Asking of Questions About Written Discourse"

Donald C. McFeely

INTRODUCTION

My interest in students' ability to ask questions comes from current research and a very practical experience that happened to me. I have always tried to relate relevant research to my Teaching of Reading methods classes and to the work I do in various school districts. The results of the 1979-80 National Assessment of Reading and Literature has more than peaked my interests. The NAEP findings are very positive in terms of reading improvement. The portion of the NAEP results I have selected for presentation concerns readers' ability to comprehend what they read and to use study skills in reading.

To fully understand the significance of the NAEP results a short summary of the data base is needed. The National Assessment of Educational Progress first assessed reading and literature achievement in separate assessments during the 1970-71 school year. Since that time, reading has been assessed twice as a discrete learning area (1974-75 and 1979-80) and reading and literature have been combined for a joint assessment in 1979-80. Each assessment surveyed the achievement and attitudes of American 9-, 13-, and 17-year olds, using a deeply stratified, multistage probability sample design.

Approximately 19,000 9-year olds, 41,000 13-year olds and 36,000 17-year olds in school participated in the 1979-80 reading and literature assessment. Because National Assessment reports results for groups of students, not individuals, it is not necessary for each student to respond to every item (exercise).

Students' reading comprehension performance was assessed by asking them to read passages and then answer one or more multiple-choice questions about what they read. In some cases, multiple-choice and open-ended questions were used to measure students' interest in the passage and students' feelings about evaluations of the passage. All of the passages were drawn from existing

textual material; they were not written specifically for the assessment. The passages represent a variety of reading and literary material that students are exposed to both in and out of school.

The current report presents results obtained from measurement of the remaining two of the four objectives that undergirded the reading and literature assessment conducted in 1979-80. These two objectives concern students' abilities to comprehend written works and to apply study skills in reading.

Taken together, these three reports describe changes in reading performance and the recent status of reading performance. Some significant findings about changes:

- Nationally, 9-year olds' overall reading performance level rose 3.9%. They made significant gains in reference skills (4.8%), literal comprehension (3.9%) and inferential comprehension (3.5%).
- Nationally, 13-year olds registered a significant increase in performance in literal comprehension from the first to the third assessment.
- Nationally, the performance level of 17-year olds declined significantly (2.1%) in inferential comprehension.

The first reaction is that there has been a positive change in reading performance when all three reports are compared. This positive change is true and I think we should let the public know that students are reading better today than they were five and ten years ago. But two cautions are worth mentioning. The statement of DeBoer (1956) as mentioned in Miss Martin's companion paper is worth repeating, "Among ourselves we must face the fact that modern life demands significantly better results than those that may have been considered adequate in past years." (p. 13)

The decline in inferential comprehension is also a reason for concern. The question we need to ask is, "How can we improve inferential comprehension?"

A partial answer is to teach students how to think at higher levels through questioning strategies.

One particular incidence has also caused a desire to deal more with questions. A few years ago I was developing two video tapes for my undergraduate classes in reading. I was attempting to compare and contrast a Directed Reading Activity (DRA) and what I called a Child Centered Directed Reading Activity (CCDRA). The DRA followed a typical basal approach that requires the teacher to be the central character. As Miss Martin states in the companion paper the typical DRA creates a "teacher dominated environment." The DRA lesson consisted of the usual background building, vocabulary introduction, school reading with a purpose, and discussion. The lesson, by DRA standards, was successful. The students answered all my questions and did branch off into discussion. The CCDRA lesson followed the same steps as the DRA except that the students were to select their own vocabulary for study, set their own purposes for reading, and instead of me asking the students questions I wanted them to discuss the story by asking each other questions. Since I know the educational setting for these students and their abilities, I assumed they would not encounter any problems. As the students completed the silent reading of the story I again informed them that when the cameras came on they (the students) were to begin to ask each other questions about what they read. As the students assembled for the discussion I noticed a hesitancy about asking questions. I motioned to the students to answer the purpose questions we had established that were written on the board. No problem was encountered. At this point silence was evident. I was off camera whispering, "Ask a question." The students just seemed to flounder. I pulled my chair into the reading group and started to lead the discussion. The students were able to take my lead and answer my questions but could not seem to ask their own questions.

I learned something that day that I always knew and always taught to my undergraduate students but did not practice for this demonstration. IF YOU WANT STUDENTS TO DO SOMETHING--YOU HAVE TO TEACH THEM.

My purpose in wanting to teach the CCDRA was to get active involvement in the reading lesson. My premise is that active involvement of the reader in the reading process (or lesson) leads to effective reading. How is active reading developed? One strategy employed is questioning. The last several years has seen a plethora of articles being generated in the area of questioning and comprehension. The literature over these years has posed various questions:

1. Are questions teachers ask assessing or teaching?
2. Do teachers ask various levels of questions?
3. Can students of varying ability answer inference questions?
4. Can students self-generate their own questions?

The purpose of this presentation is to focus on various strategies for teaching students to ask questions about what they read. A model for teaching students how to ask questions will be demonstrated and a research study will be discussed.

To establish a reason why teachers should be concerned about questioning behavior of students a review of the literature is necessary. I have selected relevant studies that have impact on our study and this presentation. I have provided a short summary of the relevant research that is appropriate for this presentation.

RELEVANT RESEARCH

Research on Teachers' Questioning

A classic study in this area is Guszak's (1967) study of the kinds of questions teachers ask about reading assignments. From a population of 106 second, fourth, and sixth grade teachers in a public school system in Texas,

a sample of four teachers (and their respective students) at each of these grade levels was randomly selected for this study. The following three questions were used to guide Guszak's observation and study:

1. What kinds of thinking questions do teachers ask about reading assignments. In what frequencies do the various question types occur?
2. How frequently are teacher questions about reading assignments met with congruent or correct student responses?
3. Do teachers employ certain questioning strategies as they question students about reading assignments. If so, what are the characteristics of these strategies?

For the purpose of this presentation, question number one is most relevant. Guszak's conclusion was that teachers spent the greatest portion of their questions on literal comprehension of recall and recognition. The observations tend to support the contention that elementary teachers dwell on literal comprehension. Guszak further states that "reading series should clearly spell out their comprehension structures in such a way that classroom teachers can have some clear insights into their task in comprehension develoment."

The questions that come to mind at this point are, " Why are teachers asking mostly literal questions?" "Is the questioning behavior of teachers influenced by the materials being used?' A partial answer to these questions can be found in Durkin's (1978-79; 1981) studies dealing with classroom observations of teachers and an analysis of reading comprehension instruction found in basal readers.

Durkin (1978-79) concludes that teachers do not give children much help in learning how to comprehend written text. Her study was an observational study to learn whether elementary school classrooms provide comprehension instruction and, if they do, to find out what amount of time is allotted to

it. On the assumption that there is less comprehension instruction in the primary grades because of the concern for decoding skills only middle and upper grades were used for the observations. Reading and social studies classes were observed.

Eight categories of comprehension were used to classify teacher behavior:

1. instruction
2. review
3. application
4. assignment
5. help with assignment
6. preparation for reading
7. assessment
8. prediction

Durkin's study was a lengthy and complex study that cannot be discussed in the confines of this paper. In relation to this paper the three major findings of her research are as follows:

1. Practically no comprehension instruction was seen. Comprehension assessment, carried on for the most part through interrogation, was common.
2. Other kinds of reading instruction were not seen with any frequency.
3. In addition to being interrogators, teachers also turned out to be assignment givers.

Durkin concludes that adding to teachers' knowledge of what constitutes good instruction will not be sufficient to bring about change.

Findings one and three have implications for this paper. The questioning behavior of teachers was one of being an interrogator not a facilitator of providing for divergent thinking.

Based on Durkin's (1978-79) study dealing with classroom observations of teachers teaching comprehension (or not teaching comprehension) a study of comprehension instruction in basal readers was inevitable. Since basal reader materials are thought to exert a strong influence on elementary school practices, Durkin (1981) examined basal reader manuals, kindergarten

through grade six, in order to see what they recommend for teaching children how to comprehend and, in the process, to learn if a match existed between what was seen in classrooms and what is in the manuals.

Durkin's earlier study indicated that articles and books concerned with teaching comprehension provide no definition for comprehension instruction. She also assumed that suggestions for comprehension instruction would be supplemented with others for application and practice. It was also assumed that some of the instruction would be reviewed. Four definitions had to be established as follows:

Instruction

A manual suggests that a teacher do or say something that ought to help students acquire the ability to understand, or work out, the meaning of connected text.

Review

A manual suggests that a teacher do or say something for the purpose of going over instruction offered previously.

Application

A manual suggests a procedure that allows for the use of what was featured in instruction. This is carried out under a teacher's supervision.

Practice

A manual suggests a procedure that allows for the use of what was featured in instruction. This is carried out by students working independently.

As in Durkin's previous study far more attention was given to assessment and practice than to direct, explicit instruction. When procedures for teaching comprehension were provided they tended to be brief. The following Table is a summary of the number of procedures found in the basal readers in relation to the four definitions.

Number of Procedures Related to Comprehension

in Five Basal Reader Series, Kindergarten-Grade Six

Series	Instruction	Review	Application	Practice
A	128	346	436	693
B	122	158	253	746
C	98	418	538	832
D	92	121	303	662
E	60	85	111	495

Durkin has been asked many times what is the difference between assessment and instruction. Durkin classified this during a conference in 1983 with the following paper.

ASSESSMENT vs. INSTRUCTION

The following paragraph is in a textbook:

> The new factory polluted the water. Many of the trees were cut down. Many more people lived there, too. Because of that, the Canadian geese never returned to Chesapeake Bay.

COMPREHENSION ASSESSMENT

Why didn't the Canadian geese return to Chesapeake Bay?

COMPREHENSION INSTRUCTION: Inter-sentence Relationships

Teacher writes the following sentence on the board:

1. Because of that, he couldn't go out to recess.

Other sentences are added:

2. John didn't do the assignments. Because of that, he couldn't go out to recess.

3. John didn't do his assignments. He didn't do his homework either. Because of that he couldn't go out to recess.
4. John didn't do the assignments. He didn't do his homework either. And when he was in line, he hit another boy. Because of that, he couldn't go out to recess.

COMPREHENSION APPLICATION

Additional examples with same construction in last sentence.

COMPREHENSION PRACTICE

Paragraph in textbook about the Canadian geese (see top of page).

Later: Additional signal words

For that reason . . .

That is why . . .

The questions that teachers ask are basically questions that require assessment. Students are really not involved in the questioning activity to a point that questioning provides an opportunity to use divergent thinking or use questions as a means to learn HOW to comprehend.

Farrar (1984) asks a very thought provoking question. "Why do we ask comprehension questions?" Farrar contends that we are doing more than stimulating thought or seeking information when we ask comprehension questions. Instead, according to Farrar, the prime function of teacher questions may be to socialize and train young people to think in accepted ways (controlling students). Through participation in question/answer/feedback sequences (q/a/f format) students learn, for example, how to comprehend and analyze literature according to culturally accepted standards. Those students who are not comfortable with the q/a/f format are clearly at a disadvantage.

Perhaps Farrar is correct in her assumption concerning the purpose of asking questions. But should we accept the premise that questions should be used to control. I think not. Questions can be an important tool for teaching but we must learn, as Farrar has concluded, that children may not be comfortable with a q/a/f format and may not be able to respond appropriately to our comprehension questions--a lack of response may not mean a lack of comprehension. There may be a need to spend some time actively familiarizing children with the q/a/f format in both oral and written contexts. If students have problems comprehending because of a lack of understanding of the question answer relationship (QAR) or the q/a/f, then perhaps we need to teach children something about questioning.

Wixson (1983) has examined the role questions play in children's learning from text. The first study (Wixson, in print) was designed to investigate the effects of different types of questions on children's comprehension and learning. A second study (Wixson, 1982) examined the effects of questions directed at information of differing levels of importance in children's learning from text. Wixson (1983) suggests that both the type and the content of questions promote different learning outcomes. Her studies specifically indicate that the different types of questions promoted different interactions between the reader and the text's information. Additionally, there was a greater learning for directly questioned information than for any other passage information. Apparently children learn and remember best those items of information that are directly questioned.

She concludes that students' interactions with questions have a direct impact on their learning, considerations such as the following must be addressed:

- We must use questions in a manner consistent with the goals and purposes of our instruction.

- Teachers must be alert to the fact that students may not be aware that there are different types of questions requiring different types of responses and must take steps to remedy this situation.
- That questions encourage readers to give more time and attention to selected bits of information. Thus, if one believes an idea is important, and you want students to remember it, ask a question about it.

Balajthy (1984) cites numerous research studies to support his assertion that students self-questioning is useful and has its place in models of learning by reading. The following are some of these studies deemed important:

1. The use of questions to improve retention has long been recognized as helpful (Thorndike, 1917) and much research has tried to determine the optimal conditions for questioning (Anderson and Biddle, 1975). Of more use in most learning situations, however, is having readers generate questions.
2. Self-questioning allows the reader to read actively for meaning independent of teacher-supplied learning aids (Singer and Donlan, 1982).
3. It enhances metacognition in that the reader realizes the relationship between cognitive resources and the learning situation (Weinstein, 1978).
4. Self-questioning serves as a motivator arousing interest and directing the reader's attention, especially under adverse conditions such as reading a lengthy and uninteresting passage. Questioning can trick the mind into maintaining attention and interest.
5. More recent questioning studies have indicated the importance of training in self-questioning especially enhances retention for poorer readers (Andre and Anderson, 1978-79).

6. Teaching students to construct questions about story structure improve retention of narrative material (Singer and Donlan, 1982).
7. Training in questions in expository structures improves retention (Balajthy, 1983).
8. Both comprehension and retention are improved for elementary school children (Chodos, Gould, and Rusch, 1977).

Using this research as support, says Balajthy, teachers would be wise to include training in self-questioning as part of their classroom instruction.

A variety of self-questioning teaching strategies are effective. Many of these are listed below (a brief description of each can be found on pp. 409-10 of his article).

1. Sentence analysis
2. Question-eliciting questions (Singer, 1978)
3. Student-led discussion
4. Group competition
5. Request (Manzo, 1969)
6. Acronym study techniques
7. Content-oriented structure exercise
8. Using teacher manuals
9. Increasing sophistication of questions (Guszak, 1967)
10. Question Circle
11. Question outline construction
12. Test-wiseness exercise
13. Use of exam clue words
14. Inferential comprehension strategy (Hanson, 1981)

As Balajthy (1984) has stated, "As with any cognitive strategy, practice is needed--simply telling them to develop questions before and during reading is not enough."

Research on Students' Question-Answer Behavior

As was stated before, effective reading requires active involvement. Two studies have offered suggestions for providing opportunities for students to become more involved in the reading lesson.

Manzo (1969) offers an alternative to the typical question answer feedback format. He calls his procedure the ReQuest Procedure.

The goal of the ReQuest Procedure is to improve students' reading comprehension by providing an active learning situation for the development of questioning behaviors. The major focus is the teacher becomes a model of questioning behavior.

The technique involves teacher-student question and answer sessions. The technique begins with both the student and teacher silently reading the first sentence of a passage. After the sentence has been read silently the student asks the teacher a question. The teacher answers the question as completely as possible. When the student is asking a question the teacher's book is closed. After the student has asked as many questions as desired, the teacher begins to ask questions and the student has to answer. ReQuest continues until the student can provide a reasonable response to the question, "What do you think is going to happen in the rest of the selection? Why?" Usually you don't go beyond three paragraphs. Through this procedure, the student gains insight into the questioning process as both a participant and observer of the teacher who acts as a role model.

Helfeldt and Lalik (1976) conducted a study with two groups of fifth grade students. One group of students was involved in a procedure called "Reciprocal Questioning." The students were reminded at the beginning of each session that every time they responded correctly to the teacher's question which she was required to answer. The student responding correctly had the option of asking a question or choosing another member of the group

to do so. Like the ReQuest procedure the Reciprocal Procedure enables the students to gain insight into the questioning process as both a participant and observer of the teacher who acts as a role model.

Recently the work of Pearson and Johnson (1978) have provided the impetus for various studies including the study of the writers. They have developed a taxonomy of question-answer relationship. They identify three types of questions based on the probable source of the information which the reader will use to answer the question. Their three category taxonomy include text explicit (TE), text implicit (TI), and script implicit (SI) question answer relationship (QAR). A TE QAR reflects a question with an answer stated explicitly in the text; a TI QAR reflects a question with all the information to answer it available in the text, but requiring the reader to integrate across sentences or paragraphs; a SI QAR reflects a question with an answer that must be supplied from the readers background knowledge.

Pearson (1981) offers a modeling strategy which he calls an Inference Awareness Training model. The model teaches students how to answer and find proof and rationales for different types of questions.

INFERENCE ANWARENESS TRAINING STRATEGIES

Pearson

	Question	Answer	Find Proof	Provide Rationale
I. Modeling	T	T	T	T
II. Guided Practice	T	T	S	S
III. Guided Practice	T	S	T	S
IV. Practice/Application	T	S	S	S

In this model the teacher over a three to four week period of time provides opportunities for students to interact with the text. During

Phase I the teacher (T) provides the complete model by asking, answering, finding proof and providing a rationale for the answer. During Phase II the teacher asks and answers the questions but the students find the proof and provide a rationale for the answer. Phase III has the teacher asking the question, student answering, the teacher finding the proof and then the student providing a rationale. The final phase gives the students the practice of answering a teacher generated question, finding proof and a rationale.

Pearson and Johnson's (1978) taxonomy has prompted several research studies (Raphael and Pearson, 1982; Raphael and Wonnacott, 1981; Raphael, Wonnacott and Pearson, 1983; Wixson, 1983) that attempted to enhance students' abilities to answer comprehension questions. Most of these studies tried to teach the students what Raphael (1982) calls a Question-Answer Relationship (QAR). The QAR suggests that a three-way relationship exists among the question, the text to which it refers, and some knowledge the reader already has.

Raphael and Pearson (1982) taught three QARs to fourth, sixth, and eighth grade students. They called these QARS: Right There, Think and Search, and On My Own. These three categories would compare to the taxonomy discussed earlier: Right There (TE - text explicit), Think and Search (TI - text implicit), On My Own (SI - script implicit). Raphael and Pearson found that students who had been taught the three QARs were more successful in answering questions than students who had not received the instruction.

Raphael and Wonnacott (1981) taught fourth grade teachers how to teach the QARs. The teachers were given a two-hour inservice and asked to implement the QARs in their regular reading program. The teachers reported how pleased they were with the ease of implementing this program.

Raphael, Wonnacott and Pearson (1983) continue to study the effects of QARs on students' ability to answer questions. This study, however, had a different focus. Three questions were considered in this study: (1) What level of inservice training is necessary for teachers to successfully implement the QAR program? (2) What level of training is necessary for fourth grade students to demonstrate increased proficiency in answering comprehension questions? (3) Will sensitivity to QARs transfer to classroom question answering activities? Space does not permit me to deal with the conclusions of this study in depth. A short summary should suffice. It appeared that inservice training is beneficial for teachers for teaching students to identify QARs. The second issue concerned with the amount of training necessary for student understanding and application of QAR knowledge remained unresolved. The third issue concerned with the transfer of QAR training to a situation which differed from the training task indicated that students benefitted from QAR training.

All of the studies cited in this section have added a great deal to our knowledge about students and questioning. There is no doubt that students can be taught to answer questions at various levels and identify types of questions and answers. All of these studies have had an impact on me and caused me to think of how I can teach these ideas to my preservice and inservice teachers. However, I believe we can take the students beyond just answering questions and teach them to also ask questions.

Research On Self-Generated Questions

Previously mentioned studies of Manzo (1969) and Helfeldt and Lalik (1976) fit into the category of techniques to encourage readers to generate questions while reading texts. Singer and Donlan (1982) provided research on instruction in knowledge structure and generation of specific questions. Cohen (1983) conducted a study using third grade children. Cohen posed

two questions: (1) Is it possible to train elementary school students to generate questions while reading a short story? (2) Will this self-questioning strategy enhance their reading comprehension? Cohen designed programmed instructional material for training students to generate questions of the who, when, where, what, how, why category for short stories. The instructional materials included a pre-post criterion test and a standardized test. The criterion test included five short stories. The students were asked to answer the question "What is this story about?" and then to generate two good questions for each story. Cohen concluded, based on her analysis of data, that her instructional materials trained children to generate questions, aiming at the literal level of comprehension.

Cohen (1983) demonstrated students can self-generate questions and all of the other studies indicated students could answer questions beyond the literal level. Can students self-generate questions at various levels and become an active reader in the basal lesson? This question is what McFeely, Martin and DeMarines (1984) are attempting to answer. The remainder of this paper will discuss a research project being conducted by the writers.

Pilot Study

The pilot study was designed to find out if students given direct instruction in recognizing and asking literal, interpretive and critical questions could ask better questions about what they read when compared to students who were not given the same instruction. For the purpose of this project the term "better" meant asking more questions at the inferential (TI) and critical (SI) levels than the literal (TE) level. A modification of Pearson and Johnson's (1978) model was used. Figures 1, 2 and 3 describe the teaching models used for this study.

Figure 1
LITERAL QUESTIONS
(TE)

	Question	Answer	Find Proof
I. Modeling	T	T	T
II. Practice	T	T	S
III. Practice	T	S	S
IV. Application	S	S	S

Figure 2
INFERENCE QUESTIONS
(TI)

	Question	Answer	Find Proof	Rationale
I. Modeling	T	T	T	T
II. Practice	T	T	S	S
III. Practice	T	S	S	S
IV. Application	S	S	S	S

Figure 3
CRITICAL QUESTIONS
(SI)

	Question	Answer	Find Proof*	Rationale
I. Modeling	T	T	T	T
II. Practice	T	T	S	S
III. Practice	T	S	S	S
IV. Application	S	S	S	S

* Not always applicable

Each model had four phases. Phase I - Modeling involved the teacher asking the question, stating the answer, finding the proof in the story (where applicable) and providing a rationale at the inferential and critical levels.

The pilot program was developed to refine the teaching strategies. Fifth and sixth graders from the University School were selected. All students were first tested with the Metropolitan Reading Survey. Control and experimental groups were formed for both the fifth and sixth grades. Ten (10) students were in each group for a N = 40. Both experimental and control groups were given a pretest of generating questions. All students were given a basal reader story to read and asked to write questions about the story they would ask other students. No limit was given for the number of questions to write. These questions were then evaluated by two researchers not involved with the teaching.

Questions were categorized and evaluated using definitions identified by Pearson and Johnson (1978) and described by Wixson (1983). For evaluation purposes the following definitions were used:

Textually Explicit (TE) - question with an answer stated implicitly in the text

Textually Implicit (TI) - reflects a question with all information to answer it available in the text, but requiring the reader to integrate across sentences or paragraphs

Scriptally Implicit (SI) - reflects a question with an answer that must be supplied from the readers background

The following example was given by Wixson (1983):

Text: "The wheel fell off the car. The car crashed into a tree."

Question: "What fell off the car? Why did the car crash into a tree? Why did the wheel fall off the car?"

The first question, "What fell off the car?" is a TE question, because

the most likely source of information for answering it is explicit in the text - the wheel fell off the car. The second quesiton, "Why did the car crash into a tree?" is a TI question, because the most likely source of information for the answer is an implication from the sentence order in the text - The wheel fell off the car and so the car crashed into a tree. The third question, "Why did the wheel fall off the car?" is an SI question. This source for the answer is the reader's prior knowledge about why a wheel might fall off.

The fifth and sixth grade experimental groups were taught to identify and generate questions using the three models. Two doctoral graduate assistants were trained to teach the models using stories and questions from a basal reader. Eleven lessons were taught. After all the lessons were taught the experimental and control groups were given a posttest on questions. Students read the same basal story as they did on the pretest and asked to write questions about the story. The same procedures were used to evaluate the posttest questions. The results of the pilot study are found in Figures 4 and 5.

An analysis of Figures 4 and 5 reveal that students can be taught to ask questions beyond the literal (TE) level. Figure 4 represents the percentages of types of questions asked by the fifth grade control and experimental groups. The experimental group asked 65% TE questions and 35% TI or SI questions on the pretest. On the posttest the fifth graders asked 5% TE questions and 95% TI or SI questions. Based on our definition of better, the Experimental group improved their questions when compared to the Control group who had 62% TE questions on the pretest and 82% TE questions on the posttest. Figure 6 indicates that the sixth grade experimental students had an increase of uestions beyond the literal (TE) but not as great as the fifth grade.

Based on the results of the pilot study the models seemed successful. We also learned from our teaching and were able to refine the teaching lessons and

make some research changes. The project was next implemented on a broader scale.

Field Project

At this conference we can only report on our preliminary findings. All of our information is not complete at this time. We can report on the success of the teaching of the models with our Treatment A school.

All sixth graders in three school districts were tested with the Metropolitan Reading Survey Test, Form JS. The number of students tested was 401. All students who scored above the sixth grade instructional level and at the fifth grade instructional level were selected as the population. The three school districts were designated as Treatment A, Treatment B and Control. The school designation was determined by flexibility of scheduling. A random sampling of those students who scored above the sixth grade level (HIGH) and at the fifth grade level (LOW) were chosen. Figure 6 gives the number of students for each school and each group that participated in the study.

Figure 6
Treatment and Control Groups

GROUPS	HIGH (above 6th)	LOW (5th grade)
Treatment A	19	13
Treatment B	15	12
Control	15	13

Treatment A students received the direct teaching of the models. The teacher for Treatment A was doctoral student who taught in the pilot program Treatment B students were given the same stories and questions about the story that Treatment A students received but no mention of definitions or

modeling was done. The teacher of Treatment B students was asked to introduce the story, have students read silently and ask the students the prepared questions. The Control students did not deviate from their prescribed program.

As in the pilot study all groups were given a pretest of writing questions about a basal reading story. This time a limit of 8 questions was given. All the questions were given to one of the researchers who was not working directly with the teaching in the field and two graduate assistants. All three had been given the definitions of TE, TI and SI questions and they conducted an evaluation of forty questions that were selected at random from questions written during the pilot program. Each evaluator worked independently and categorized the questions under TE, TI, and SI. The results were analyzed to determine relability. The three evaluators then took the questions for the pretest and categorized them according to TE, TI, and SI questions. Two different stories were used for the pretest in order that students would get a different story for the posttest. Half the students had one story and the other half had another. THis was done in order to control the variable of content.

Treatment A students received 8 lessons directed at teaching them to identify and generate TE, TI, and SI questions. The length of each lesson was thirty-two minutes. Treatment B students were introduced to both of the stories that were used with Treatment A. One story was introduced one week and another story was introduced the following week. The Control group had their prescribed program. At the conclusion of the teaching all groups took the posttest on questions. The questions were evaluated using the same procedures as the pretest.

As was stated before all of the statistical information is not complete. We are presently running a 3 x 2 with 1 repeated measure ANOVA. We can report

percentage scores at this time. The following represents a summary of the percentages of questions asked.

TREATMENT A

	PRETEST			POSTTEST		
	TE	TI	SI	TE	TI	SI
HIGH	61%	20%	19%	21%	12%	67%
LOW	57%	12%	31%	18%	12%	70%

TREATMENT B

	PRETEST			POSTTEST		
	TE	TI	SI	TE	TI	SI
HIGH	83%	11%	6%	85%	12%	3%
LOW	70%	16%	14%	78%	8%	14%

CONTROL

	PRETEST			POSTTEST		
	TE	TI	SI	TE	TI	SI
HIGH	78%	12%	10%	77%	13%	10%
LOW	81%	16%	3%	68%	18%	14%

An analysis of the above percentages indicate that Treatment A (received instruction) had a change from pretest to posttest in terms of a change from TE questions to SI questions. As in the pilot study we believe we can state that the direct teaching of a model can help students self-generate questions beyond the literal (TE) level. A complete analysis of this data will be forthcoming.

SUMMARY

This paper has attempted to review some of the relevant research in the area of questioning. The basic premise of this paper is that we can teach students to ask different types of questions by giving them direct instruction and by involving students as active participants in the reading lesson we can start them on the way to being effective readers. Another premise of this paper is that students can ask questions of so called higher levels and that teachers need to teach students to ask questions beyond the literal level. This paper is not saying that literal questions are not important, but teachers need to teach students to ask "better" questions which infers inferential and critical questions.

Herber (1978) discusses the principle that "the essence of good teaching is to show students how to do what they are required to do." If we believe that students should be able to ask or write questions about what they read then we must show students HOW to ask questions. We believe the model described in this paper can help.

Figure-4

5th Grade Students

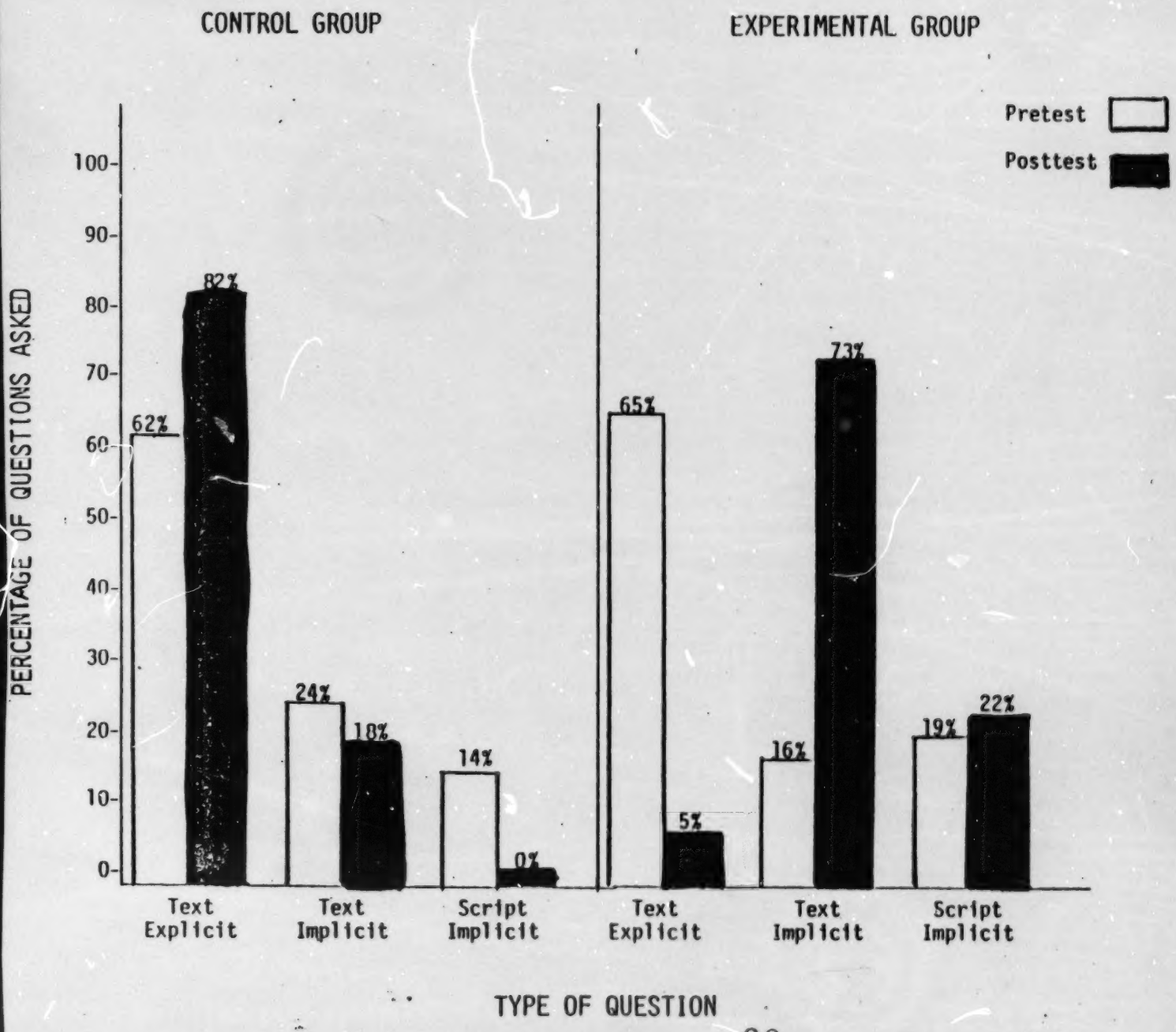
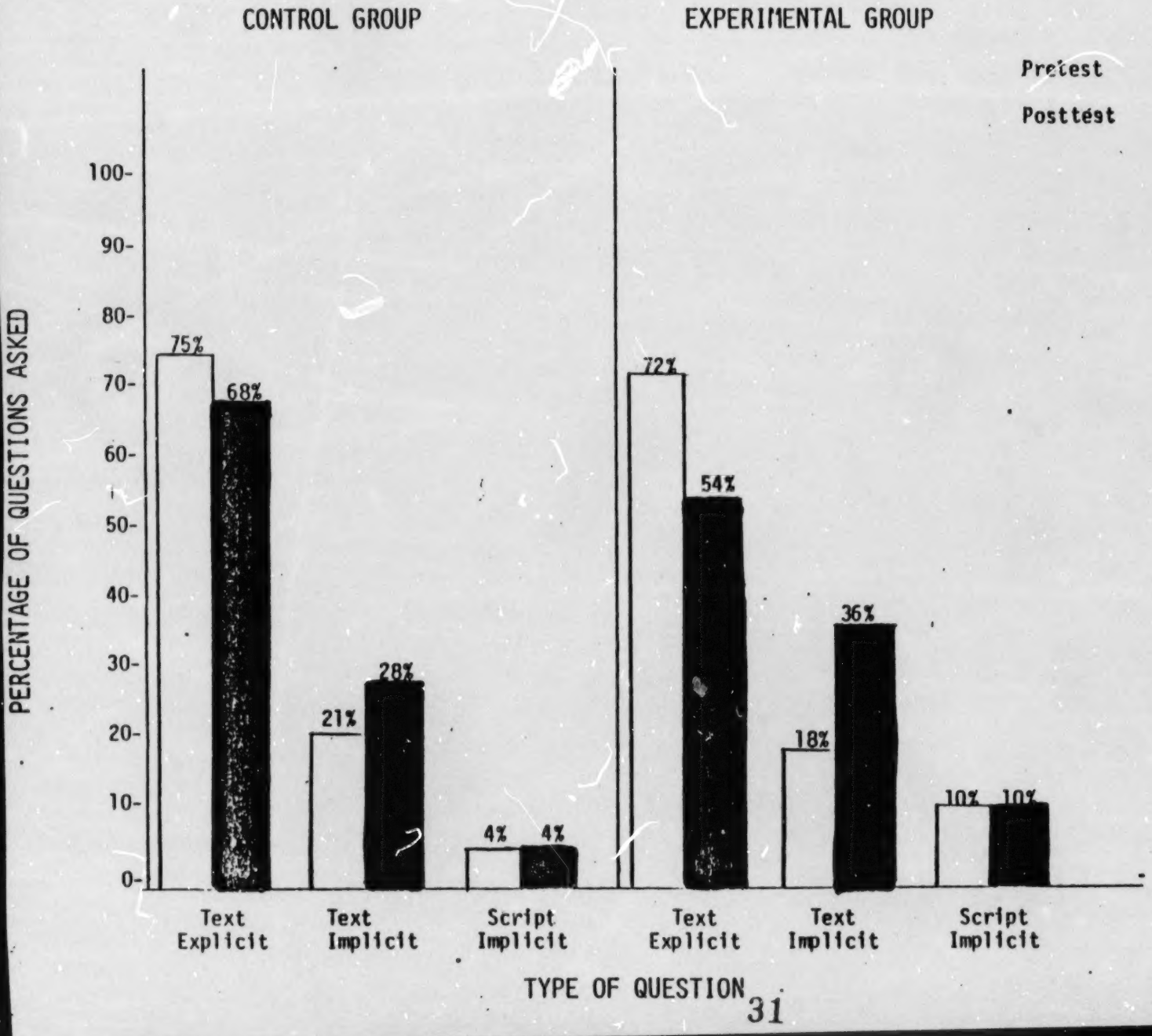


Figure-5
6th Grade Students



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